Clinicopathological Study of Parapharyngeal Tumours: Our Experience in Burdwan Medical College

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Abstract

Objective: To study the clinical and histopathological characteristics along with the management of parapharyngeal space tumours.

Study design: Prospective study.

Setting: Department of ENT & Head and Neck Surgery, Burdwan Medical College and Hospital, Burdwan.

Methods: Twenty patients with parapharyngeal tumours treated in Burdwan Medical College & Hospital from November 2013 to October 2014 were included in the study.

Conclusion: Parapharyngeal tumours are rare head and neck neoplasms. Neck swelling is the most common clinical presentation. Schwannoma is the most common type of tumour involving parapharyngeal space. Their accurate diagnosis and management is challenging.

Keywords: Parapharyngeal tumours; Schwannoma; Parangangioma

Introduction:

Parapharyngeal space (PPS) is a rare location for head and neck tumours. Tumours of the parapharyngeal space, although mostly benign in their histopathology, present a challenge to the surgeon due to the limited access. Primary parapharyngeal tumours are rare tumours and only account for 0.5% of all the head and neck tumours (Stanley RE, 1991) of which approximately 80% are benign. Many tumours of the parapharyngeal space are metastatic disease or direct extension from adjacent spaces. Parapharyngeal tumours most commonly present as asymptomatic masses in the neck or palatal region found on routine physical examination. This study focuses on age and sex distribution, clinical presentation and histopathological types of parapharyngeal tumour and their surgical approach.

Materials and methods

This study was carried out in the Dept of ENT, Burdwan Medical College & Hospital. It comprises of 20 patients with parapharyngeal tumour treated successfully from November 2013 to October 2014. All the patients were examined carefully after admission. Intraoral and cervical examination was carried out to roughly assess the extent of tumour. Neurological examination was done to exclude cranial nerve and sympathetic chain involvement. CT Scan and fine needle aspiration cytology (FNAC) was done routinely. Ultrasound of neck and Colour Doppler study was done in selected cases.

Observation

In our study, Maximum patients fall within the age group between 30-50 years and among them the most common age group of presentation was 30-40 years - 7 patients (35%) followed by the age group between 40-50 years - 5 patients (25%). There was a male predominance. Out of 20 cases, 13 cases (65%) were males and Teases (35%) were females.

The commonest presenting symptom in our study was neck swelling -16 cases (80%), followed by intraoral swelling-10 cases (50%), muffled voice - 10 cases (50%), dysphagia - 9 cases (45%), Pain - 4 cases (25%) and trismus-2 cases(10%) (Table 1).

Table-1: Clinical Presentation

<table>
<thead>
<tr>
<th>Clinical presentation</th>
<th>No. of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck swelling</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>Intraoral swelling</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Muffled voice</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Dysphagia</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>Pain</td>
<td>4</td>
<td>25%</td>
</tr>
<tr>
<td>Trismus</td>
<td>2</td>
<td>10%</td>
</tr>
</tbody>
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The commonest histological variant that we have found in our study was schwannoma - 9 cases (45%) followed by salivary tumour - 5 cases (25%), Rhabdomyoma - 2 cases (10%), Lymphoma-2 cases (10%) carotid body tumour- 1 case (5%) and metastatic carcinoma - 1 case (5%) (Table 2).

Table 2 Types of Parapharyngeal Tumours

<table>
<thead>
<tr>
<th>Types of tumours</th>
<th>No. of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schwannoma</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>Pleomorphic adenoma</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>Rhabdomyoma</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Metastatic Ca</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Carotid body tumour</td>
<td>1</td>
<td>5%</td>
</tr>
</tbody>
</table>

The most common surgical approach that has been done was transcervical approach - 11 cases (55%) followed by transcervical- transparotid approach - 5 cases (25%).

The parapharyngeal space is a complex anatomical area. Primary parapharyngeal tumours are rare tumours and only account for 0.5% of all the head and neck tumours.

Most of the tumours of the parapharyngeal space are metastatic disease or direct extension from adjacent spaces. Generally, these tumours tend to present late attaining an impressive size. Meticulous intraoral and cervical examination including bimanual palpation gives the clinician a rough impression of the size of the tumour. Hence, safe and effective removal demands a through surgical acumen and experience.

Parapharyngeal space is a inverted cone shaped space that extends from the base of the skull to the greater cornu of hyoid bone. Medially, it is bounded by the buccopharyngeal fascia and superior constrictor muscle whereas the lateral boundary is formed by the ramus of mandible. Posterior boundary is formed by the vertebra and prevertebral muscles along with posterior surface of carotid sheath. Styloid-palatine-vascular fascia divides this space into pre-styloid and post-styloid compartment.

Most of the lesions are benign in nature and they tend to present late, the most common age group of presentation is 4th to 5th decade.

In our experience, the commonest presenting symptom was neck swelling (80%)-(Table 1). This correlates with various published literatures.

FNAC is an important and essential investigation with an 95% accuracy rate. It can be improved even further to 92% by combining FNAC with CT which are essential for lesions that are not directly detectable without imaging techniques. It is equally applicable for swellings of neck or oropharyngeal lesions.

Contrast CT Scan [Fig-1] is the most useful investigation. It helps to know the site of origin, size, extent of the tumour and involvement of the surrounding structures by the tumour. MRI delineates soft tissue density better. Carotid angiography helps to detect the carotid involvement in suspected cases of paragangioma and carotid body tumour. Colour doppler is also an important investigation to assess the vascular tumours. MR angiogram can supplement invasive angiography regarding further information on carotid involvement and vascular pattern of the tumour mass in selective cases.

![Fig 1: CT scan showing right parapharangical tumour](image)

Definitive surgical treatment will be considered first as this is the most common treatment modality for maximum parapharyngeal space lesions. It may be essential to obtain histological diagnosis and this should be excisional rather than incisional and the planned approach must be adequate for a full oncological resection.

For most tumours of the post-styloid space the transcervical approach is preferred. Exposure in this approach is limited superiorly by the angle of mandible and this approach is suitable only small to moderate tumours. Tumours extending near the base of the skull cannot be managed by this due to limited exposure. In our study, the most commonly used approach was transcervical - 11 cases (55%).

Other approaches available are transparotid, transmandibular, transpalatal, transoral and infratemporal fossa approach. Transparotid approach is suitable for salivary tumours arising from deep lobe of parotid gland. In our study, 5 cases were excised by transparotid approach (25%).

Transmandibular approach is required for malignant
tumours of the anterior parapharyngeal space, particularly for oropharyngeal involvement or for malignant salivary gland tumours and tumours involving base of the skull. For even more extensive tumours, a midline mandibulotomy may be required. Transpalatal approach was considered only for small benign tumours, which are extra-parotid and non-vascular since exposure is very limited and adequate control of great vessels is quite difficult.

Transoral approach provides poor access and poor visualisation and is not a recommended approach. Combined infratemporal fossa and transfacial approach is a new alternative approach for massive tumours within the infratemporal fossa and pterygopalatine fossa. This provides excellent control of internal carotid artery without leaving facial scars. For the excision of skull base lesions, a subtemporal and preauricular infratemporal approach is useful.

None of the cases which were done in our institution were approached through transmandibular or transoral route due to above mentioned difficulties.

Radiotherapy is recommended for parapharyngeal space extension of nasopharyngeal carcinomas. Techniques such as hyperfractionated regimens, intensity modulated regimens and stereotactic radio surgery have offered exciting advances in this field. It is also effective in controlling the growth of the carotid body paragangliomas and deep lobe parotid tumours that have recurred. Chemoradiation protocols are used primarily in the treatment of rhabdomyosarcomas and other sarcomas of the parapharyngeal space. For primary parapharyngeal malignancy, chemotherapy should include doxorubicin for glandular neoplasms and for squamous cell carcinomas, cisplatin and 5-flurouracil.

Out of 20 cases 3 cases were referred to radiotherapy dept. for further management. One case of carotid body tumor [Fig-2] was also referred to cardiothoracic dept for surgical management.

**Conclusion:**

In our study, the most common way of presentation of parapharyngeal tumours was neck swelling followed by intraoral swelling and commonest tumour in the parapharyngeal space is schwannoma followed by salivary tumours. Surgery is the best way to treat these tumours. Transcervical approach is a very good way to deal with the small to moderate size parapharyngeal tumours. Large well-defined tumours can also be well managed by this approach. Radical surgeries like transparotid or transmandibular approaches should be reserved for malignancy and more extensive tumours and skull base lesions.

**References:**


**Fig 2 : Pre-operative picture showing the carotid body tumour**